AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method of transmitting data signals from at least two transmitting terminals, with each having at least one transmitting means, to at least one receiving terminal having a spatial diversity receiving means, the method comprising:

transmitting from the transmitting terminals transformed data signals, being transformed versions of respective data signals, wherein spectra of the transformed data signals are at least partly overlapping;

receiving on the spatial diversity means received data signals, wherein the received data signals are each a function of one of the transformed data signals;

subband processing of the received data signals in the receiving terminal; and

determining estimates of the respective data signals, on a subband by subband basis, from the subband processed received data signals in the receiving terminal, wherein said determining includes, for at least one data signal:

selecting from the data signals a selected data signal;

determining an estimate of the selected data signal from the subband processed received data signals;

modifying the subband processed received data signals based on the estimate of the selected data signal; and

determining estimates of the remaining data signals from the modified subband processed received data signals.

2. (Original) The method of Claim 1, wherein the transmitting is substantially simultaneous.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Original) The method of Claim 1, wherein selecting a data signal is based on the receiving power of the data signals.

7. (Original) The method of Claim 1, wherein selecting a data signal is based on the interference ratio of the data signals.

8. (Cancelled)

9. (Original) The method of Claim 1, wherein selecting a data signal is based on the interference ratio of the data signals.

10. (Original) The method of Claim 1, wherein the subbands, being involved in the subband processing, are grouped into sets, at least one set comprising at least two subbands; and wherein determining the estimates of the data signals in the receiving terminal comprises:

determining relations between the data signals and subband processed received data signals on a set-by-set basis; and

exploiting the relations between the data signals and the subband processed received data signals for determining the data signals.

11. (Original) The method of Claim 1, wherein the transformation of the data signals to transformed data signals comprises inverse subband processing.

12. (Original) The method of Claim 1, wherein determining estimates of the data signals from subband processed received data signals in the receiving terminal comprises:

determining intermediate estimates of the data signals from the subband processed received data signals in the receiving terminal; and

obtaining the estimates of the data signals by inverse subband processing the intermediate estimates.

13. (Original) The method of Claim 1, wherein the transformation of the data signals to transmitted data signals further comprises guard interval introduction.

14. (Original) The method of Claim 1, wherein the subband processing comprises orthogonal frequency division demultiplexing.

15. (Previously Presented) The method of Claim 11 , wherein the inverse subband processing comprises orthogonal frequency division multiplexing.

16. (Original) The method of Claim 1, wherein the determining of the data signals is essentially based on the distinct spatial signatures of the received data signals.

17. (Previously Presented) A method of transmitting data signals from a transmitting terminal having a spatially diverse transmitting means comprising at least two transmitting means to at least two receiving terminals , the method comprising:

providing at least two data signals at the transmitting terminal;

determining at least two combined data signals in the transmitting terminal, the combined data signals each being transformed versions of the data signals, wherein the combined data signals are adapted for facilitating estimation of the data signals by the receiving terminals;

inverse subband processing each of the combined data signals;

transmitting one of the inverse subband processed combined data signals from each of the at least two transmitting means, wherein said inverse subband processed combined data signals form a different composite data signal at each of said at least two receiving terminals;

receiving at each receiving terminal one of a plurality of composite data signals; and

determining at each receiving terminal an estimate of the data signal intended for the respective receiving terminal from the respective received composite data signal.

18. (Previously Presented) The method of Claim 17, wherein the transmitting of said inverse subband processed combined data signals from said at least two transmitting means is substantially simultaneous.

19. (Previously Presented) The method of Claim 17, wherein the spectra of the inverse subband processed combined data signals are at least partly overlapping.

20. (Previously Presented) The method of Claim 17, wherein determining the at least two combined data signals in the transmitting terminal is determined on a subband by subband basis.

21. (Previously Presented) The method of Claim 19, wherein determining the estimates of the data signals in the receiving terminals comprises subband processing.

22. (Original) The method of Claim 17, wherein determining combined data signals in the transmitting terminal comprises:

determining intermediate combined data signals by subband processing the data signals; and

determining the combined data signals from the intermediate combined data signals.

23. (Previously Presented) The method of Claims 21, wherein the subband processing is orthogonal frequency division demultiplexing.

24. (Original) The method of Claim 17, wherein the inverse subband processing is orthogonal frequency division multiplexing.

25. (Original) The method of Claim 17, wherein the subbands, being involved in inverse subband processing, are grouped into sets, at least one set comprising at least two subbands; and wherein determining combined data signals in the transmitting terminal comprises:

determining relations between the data signals and the combined data signals on a set-by-set basis; and

exploiting the relations between the data signals and the combined data signals for determining the data signals.

26. (Original) The method of Claim 17, wherein in the inverse subband processed combined data signals a guard interval is introduced.

27. (Original) The method of Claim 17, wherein the determining of combined data signals is essentially based on the distinct spatial signatures of the transmitted inverse subband processed combined data signals.

28. (Currently Amended) An apparatus for determining estimates of data signals , the apparatus comprising:

at least one spatial diversity receiving means comprising at least two receiving means;

circuitry for receiving a data signal on each of the at least two receiving means, wherein the data signals received on the at least two receiving means are each a function of a transmitted signal and characteristics of the data signals define a spatial signature of the data signals;

circuitry for subband processing, on a subband by subband basis, the data signals received on each of the at least two receiving means[,]; and

circuitry for determining estimates of the data signals from the subband processed received data signals.

29. (Original) The apparatus of Claim 28 wherein the circuitry is arranged for determining estimates of the data signals from subband processed received data signals and

comprises a plurality of circuits each being arranged for determining part of the estimates of the data signals based on part of the subbands of the subband processed received data signals.

30. (Original) The apparatus of Claim 28, wherein the spatial diversity means comprises at least two receiving means and the circuitry is arranged for receiving the received data signals with the spatial diversity means and comprises a plurality of circuits each being arranged for receiving the received data signals from one of the receiving means of the spatial diversity means.

31. (Original) The apparatus of Claim 28, wherein the determining of the data signals is essentially based on the distinct spatial signatures of the received data signals.

32. (Cancelled)

33. (Previously Presented) An apparatus for transmitting a plurality of data signals to a plurality of terminals, the apparatus comprising:

circuitry for combining a plurality of data signals to create two combined data signals, wherein the combined data signals are adapted for facilitating estimation of the plurality of data signals respectively intended for each of a plurality receiving terminals;

circuitry for inverse subband processing the combined data signals; and

at least two spatial diverse transmitting means configured to transmit respective inverse subband processed combined data signals to at least two receiving terminals, wherein said inverse subband processed combined data signals form a composite data signal at each of said plurality of terminals.

34. (Previously Presented) The apparatus of Claim 33, wherein the combining circuitry comprises a plurality of circuits each being adapted for combining data signals based on part of the subbands of the data signals.

35. (Previously Presented) The apparatus of Claim 33, wherein the spatial diversity transmitting means comprises at least two transmitting means adapted for transmitting inverse subband processed combined data signals; the transmitting means further comprises a plurality of circuits each being adapted for transmitting the inverse subband processed combined data signals with one of the transmitting means of the spatial diversity means.

36. (Original) The apparatus of Claim 33, wherein the spectra of the inverse subband processed combined data signals are at least partly overlapping.

37. (Previously Presented) The apparatus of Claim 33, wherein the combining of data signals is essentially based on the distinct spatial signatures of the transmitted inverse subband processed combined data signals.

38. (Original) The apparatus of Claim 33, wherein determining combined data signals are on a subband by subband basis.

39. (Previously Presented) A method of transmitting data signals from at least two transmitting terminals with each at least one transmitting means to at least one receiving terminal with a spatial diversity receiving means comprising:

transmitting from the transmitting terminals transformed data signals, being transformed versions of the data signals, wherein spectra of the transformed data signals are at least partly overlapping;

receiving on the spatial diversity means received data signals being at least function of at least two of the transformed data signals;

subband processing of at least two of the received data signals in the receiving terminal; and

determining estimates of the data signals, on a subband by subband basis, from subband processed received data signals in the receiving terminal, wherein determining the estimates of the data signals comprises:

selecting from the data signals a selected data signal;

determining a plurality of estimates of the selected data signal from the subband processed received data signals;

determining a plurality of modified subband processed received data signals, each of the modified subband processed received data signals being based on one of the estimates of the selected data signal;

determining a plurality of estimates of at least one of the remaining data signals from the plurality of modified subband processed received data signals; and

thereafter selecting one of the estimates of the selected data signal.

40. (Previously Presented) The method of Claim 39, wherein selecting a data signal is based on the receiving power of the data signals.

41. (Previously Presented) The method of Claim 39, wherein selecting a data signal is based on the interference ratio of the data signals.

42. (Previously Presented) The method of Claim 39, wherein selecting a data signal is based on the interference ratio of the data signals.

43. (Previously Presented) A method of transmitting data signals from at least two transmitting terminals with each at least one transmitting means to at least one receiving terminal with a spatial diversity receiving means comprising:

transmitting from the transmitting terminals at least two transformed data signals, the transformed data signals being transformed versions of the data signals;

receiving on the spatial diversity means received data signals being at least function of at least two of the transformed data signals;

subband processing of at least two of the received data signals in the receiving terminal;

determining intermediate estimates of the data signals from the subband processed received data signals in the receiving terminal; and

obtaining estimates of the data signals by inverse subband processing the intermediate estimates.

44. (Previously Presented) The method of Claim 43, wherein the determining of the data signals is essentially based on the distinct spatial signatures of the received data signals.

45. (Previously Presented) The method of Claim 17, wherein the combined data signals are adapted to separate each receiving terminals' data symbols so that each respective receiving terminal may determine an estimation of the data signal intended for each respective receiving terminal.

46. (Previously Presented) A system for transmitting data signals from at least one transmitting terminal having a spatial diversity transmitting means to at least two receiving terminals each having at least one receiving means comprising:

means for determining intermediate combined data signals by subband processing the data signals;

means for determining the combined data signals from the intermediate combined data signals, the combined data signals being transformed versions of the data signals,

wherein the combined data signals are adapted for facilitating estimation of the data signals by said receiving terminals;

means for inverse subband processing the combined data signals;

means for transmitting with the spatial diversity transmitting means said inverse subband processed combined data signal;

means for receiving on at least one of the receiving means of at least one of the receiving terminals an inverse subband processed received data signals, being at least function of the inverse subband processed combined data signals; and

means for determining at said at least one of the receiving means estimates of the data signals intended for said at least one of the receiving means from the inverse subband processed received data signals.

47. (Currently Amended) A communication method comprising:

receiving a plurality of data signals at a base station;

generating a first ~~two~~ combined data ~~signals~~ signal based at least on a first and second of ~~on~~ said plurality of data signals,

generating a second combined data signal based at least on the first and second of said plurality of data signals,

wherein the first and second combined data signals are adapted for facilitating estimation of one of the plurality of data signals at each of a plurality of receiving terminals; and

transmitting from each of two transmitters one of the ~~two~~ combined data signals.

48. (Previously Presented) The communication method of Claim 47, wherein said combined data signals form a composite data signal at each of said plurality of receiving terminals.

49. (Previously Presented) The method of Claim 48, further comprising:

receiving at each of said plurality of receiving terminals one of said composite data signals; and

determining at each of said receiving terminals an estimate of the data signal intended for the respective receiving terminal from the composite data signals.

50. (Currently Amended) A method of transmitting data signals from a terminal to a base station, the method comprising:

~~transmitting a data signal from a terminal;~~

receiving at a base station on two spatially diverse receiving means respective representations of a ~~said~~ data signal, wherein the representations of said data signal received on the two receiving means are each a function of the data signal;

subband processing the data signal; and

subsequent to subband processing the data signal, estimating the data signal based at least partly on the differences between the representations of the data signal received on the two receiving means due to the different transmission paths taken by each of the data signals.

51. (Previously Presented) The method of Claim 50, wherein the estimating the data signal is based at least partly on an interference ratio of the representations of the data signal.

52. (Previously Presented) The method of Claim 50, wherein the data signal is inverse subband processed before ~~said~~ being transmitted ~~transmitting~~.